

CLAIMS

1. A method for realizing QoS guarantee in a MPLS network, including:
creating individual QoS resource list in each edge router to record resource state corresponding to a path;
said each edge router assigning resources to a user terminal which makes a request based on said QoS resource list and updating the QoS resource list.
2. The method according to claim 1, characterized in that the resource states of the paths from the edge router to all the other edge routers in same domain are recorded in said QoS resource list.
3. The method according to claim 1, characterized in that the step of creating a QoS resource list further includes:
pre-configuring LSPs based on service class to set different LSPs for different service classes;
said edge router obtaining resource information of the path from the edge router to each of the other edge routers in the same domain based on LSP resource state information and route information of said MPLS network, and saving the resource information in the QoS resource list.
4. The method according to claim 1, characterized in that the step of assigning resources to a user terminal which makes a request further includes:
said edge router receiving a resource request from the user terminal;
said edge router searching said QoS resource list for available information of the requested resources based on an egress edge router in said resource request;
said edge router determining whether the resource request is accessed or rejected based on the available information of said requested resources;
when the resource request is determined to be accessed, modifying the available information of the requested resources in said QoS resource list and sending an acknowledgement message to said user terminal.
5. The method according to claim 1, characterized in that said QoS resource list at

least includes information of the egress edge router, service class, LSP resources and available resources.

6. A method for establishing a QoS data path in a MPLS network, including:

a user terminal sending a QoS resource request to an ingress edge router;

said edge router determining information of a path to an egress edge router of the QoS resource request;

said ingress edge router determining whether the resource request is accessed or rejected based on resource state corresponding to the path recorded in its QoS resource list; and

when the resource request is determined to be accessed, updating said QoS resource list.

7. The method according to claim 6, characterized in that the resource states of the paths from the edge router to all the other edge routers in same domain are recorded in said QoS resource list.

8. The method according to claim 6, characterized in that the step of determining further includes:

comparing available resources of the requested resources in said QoS resource list with bandwidth resources requested in said resource request;

if said available resources are less than said bandwidth resources, sending a message of rejecting access to said user terminal, otherwise allowing said user terminal to access.

9. The method according to claim 8, characterized in that the step of allowing the user terminal to access further includes:

when the resource request is not cross-domain, said edge router sending the resource request to a destination user terminal in said resource request and waiting for an acknowledgement message from the destination user terminal;

when the resource request is cross-domain, searching for a domain which is close to the destination user terminal in said resource request and has available resources

larger than said bandwidth resources, sending the resource request to an edge router of the domain and waiting for an acknowledgement message from the edge router of the domain;

after receiving the acknowledgement message, said edge router sending the acknowledgement message to said user terminal; and

after receiving the acknowledgement message, said user terminal starts the data transmission.

10. The method according to claim 6, characterized in that the step of updating the QoS resource list further includes:

subtracting the bandwidth resources requested in said QoS resource request from the available resources of the corresponding requested resources in said QoS resource list.

11. The method according to claim 6, characterized in that said QoS resource list at least includes information of the egress edge router, service class, LSP resources and available resources.

12. A method for terminating QoS data transmission in a MPLS network, including:
an ingress edge router receiving a resource releasing request from a user terminal;
said ingress edge router releasing the resources occupied by said user terminal; and
said ingress edge router modifying its QoS resource list which records resource state corresponding to a path.

13. The method according to claim 12, characterized in that the resource states of the paths from the edge router to all the other edge routers in same domain are recorded in said QoS resource list.

14. The method according to claim 12, characterized in that the step of modifying the QoS resource list further includes:

adding corresponding amount to available QoS resources corresponding to an egress edge router of said QoS data transmission in the QoS resource list.

15. The method according to claim 12, characterized in that said QoS resource list at

least includes information of the egress edge router, service class, LSP resources and available resources.

16. An edge router for a MPLS network, including:
a QoS resource list for recording resource state corresponding to a path; and
an access and resource control unit for accessing or rejecting a resource request from a user terminal based on information recorded in the QoS resource list and updating said QoS resource list.

17. The edge router according to claim 16, characterized in that the resource states of the paths from the edge router to all the other edge routers in same domain are recorded in said QoS resource list.

18. The edge router according to claim 16, further including a route list and a MPLS list based on which said QoS resource list is created and corresponds to LSP resource state of the MPLS network.

19. The edge router according to claim 16, further including a data transmission unit which, under the control of said access and resource control unit, performs operations such as classifying, marking, queuing and scheduling etc. on data transmitted by the user terminal.

20. The edge router according to claim 16, characterized in that said QoS resource list at least includes information of the egress edge router, service class, LSP resources and available resources.

21. A MPLS network for realizing QoS guarantee, including:
an edge router according to any one of claims 16 to 20.